

**SECTION 014500**  
**QUALITY CONTROL**

**PART 1 – GENERAL**

101. QUALITY ASSURANCE & QUALITY CONTROL (QA/QC)
- 101.1 CONTRACTOR shall submit its QA/QC manual for review and acceptance. CONTRACTOR shall ensure that all materials, equipment, products and work are manufactured in accordance with the QA/QC program. The CONTRACTOR shall be responsible for ensuring that its sub-contractor's QA and QC programs meet the specified requirements imposed on the CONTRACTOR by DISTRICT. CONTRACTOR shall resolve any comments to the DISTRICT's satisfaction, post-award.
- 101.2 CONTRACTOR shall be responsible for ensuring that its sub-contractor's QA and QC programs meet the specified requirements imposed on the CONTRACTOR by the DISTRICT.
- 101.3 CONTRACTOR shall develop an inspection point program. The program shall include the manufacturing, inspection and test operations that the CONTRACTOR believes may be of interest to the DISTRICT in demonstrating product quality, whether performed in its or its sub-contractors' facilities.
- 101.4 Within two (2) weeks prior to beginning of fabrication or as defined elsewhere under Drawings/Data submittal requirements, the following applicable procedures shall be submitted for review and acceptance as applicable:
- a. Welding Procedure Specifications (WPS)
  - b. Procedure Qualification Records (PQR)
  - c. Welder and welding inspector certifications
  - d. Inspection and test procedures conducted in accordance with applicable industry standards such as, but not limited to, ASME, ANSI, IEEE, API, HEI, NEMA, ASTM
  - e. Cleaning, painting, storage, packaging and shipping procedures. CONTRACTOR shall attach the Material Safety Data Sheets (MSDS) with all painting/coating procedures.
  - f. Nondestructive examination procedures and personnel qualifications
  - g. Special processes procedures, such as heat-treating, pipe bending, flushing, etc.
- 101.5 Quality documents, such as but not limited to the ones listed below, shall be submitted as required by the DISTRICT for review and acceptance:
- a. Material certifications, including filler metal certifications
  - b. Mill Test Reports (MTR's)
  - c. Shop inspection check sheets
  - d. Nondestructive examination records
  - e. Test records

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- f. Manufacturer's data reports
  - g. Material safety data sheets (MSDS), etc.
  - h. Copies of all deviation reports / non-conformance reports and dispositioning records
  - i. Certificate of conformance
- 101.6 Radiographs and reader sheets shall be submitted to the DISTRICT for review and acceptance within ten (10) days after completion of radiographic examination. All radiographs not properly identified will be rejected.
- 101.7 Deviations and nonconformances
- a. Non-conformances and deviations shall be documented in detail and promptly submitted to the DISTRICT for review, acceptance, and resolution.
  - b. Any departure from any requirement of this Specification is considered a deviation or nonconformance. Examples include physical defects in equipment, test failures, equipment out-of-tolerance, or deviations from specification, inspection or test procedures. No deviation or nonconformance from this Specification shall be accepted until approved in writing by the DISTRICT.
- 101.8 The DISTRICT and/or its designated representative shall have full access to CONTRACTOR's and its sub-contractor's facilities for reviewing conformance to the specifications and approved QC program/records, as well as for witnessing of inspections and tests. DISTRICT and Engineer shall be notified ten (10) working days prior to the start of the witness points as specified by the DISTRICT. The DISTRICT shall notify CONTRACTOR two (2) working days prior to arrival at CONTRACTOR's or its sub-contractor's facilities.
102. WITNESS AND HOLD POINTS
- 102.1 DISTRICT shall have the right to establish witness and hold points as indicated in this Specification. DISTRICT may establish witness points to ensure resolution of quality problems.
- 102.2 Witness points are defined as predetermined points during fabrication when equipment or activities may be inspected or witnessed for compliance with the Contract, specification, and quality requirements.
- 102.3 Hold points are defined as predetermined points during fabrication when equipment must be inspected and accepted by the DISTRICT or DISTRICT Representative prior to continuing fabrication, manufacturing, or releasing for shipment. In general, final inspection prior to shipment will be a hold point. The DISTRICT shall have the right to access the CONTRACTOR's and CONTRACTOR's Subcontractor's facilities at any time to verify the progress and quality of the work.
103. STOP WORK ACTION:
- 103.1 DISTRICT will orally notify and confirm in writing to CONTRACTOR of any situation where, in the judgment of DISTRICT, CONTRACTOR or CONTRACTOR's Subcontractors are performing work contrary to the conditions and terms of the Purchase Agreement or where continued operations could cause damage, preclude further inspection, or render remedial action ineffective for any product or service provided by CONTRACTOR or CONTRACTOR's Subcontractors.

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- 103.2 If, after this notification, CONTRACTOR does not commence appropriate corrective action to the satisfaction of DISTRICT, DISTRICT shall initiate stop work action on the specified product or service and so notify CONTRACTOR in writing.
- 103.3 Upon receipt of a Stop Work Directive (SWD) from DISTRICT, CONTRACTOR and CONTRACTOR's Subcontractors shall cease operations, including shipments, on any specified product or service to the extent stipulated by the SWD. Resumption of operations shall not be undertaken until CONTRACTOR has obtained a written authorization from DISTRICT. A written authorization to resume further operations shall only be granted upon approval of CONTRACTOR's written commitment to correct those conditions itemized on the SWD. Correction of the actual deficiency will be required prior to release for shipment.
104. QUALITY PLAN
- 104.1 Following are examples of the supplier quality monitoring process and may be used in whole or in part, as determined necessary, to assure that the supplied product meets specification requirements:
- Quality Audits
  - Review of vendors' "Quality Management Program" (QA/QC Manuals, Fabricator's Inspection Point Program, Shop Inspection/Test Procedures, Special Process/Fabrication Procedures, etc.)
  - Source surveillance performed during manufacture/fabrication
- 104.2 Project "Quality Plan" shown below shall include the following items as a minimum assure supplier compliance to deliver the respective equipment:

	Verify <sup>1</sup>	Witness <sup>2</sup>
<b>Absorber Area/ Reagent Preparation Area/Gypsum Dewatering Area</b>		
<b>Pumps</b>		
Quality Management Program <sup>3</sup>	X	
Welding Procedures & Procedure Qualification Records, as applicable	X	
Welder and Welding Inspector Certifications	X	
PWHT Records, as applicable	X	
Shop Inspection Check sheets	X	
Shop Inspection/Test Reports	X	
NDE (RT, UT, MT, PT) Reports, as applicable	X	
Mill Test Reports (MTR's)	X	
Rotor Balance data	X	X (optional)
Noise Level Check	X	
Hydro Testing Reports	X	X (optional)
Pump Performance Testing Reports	X	X (optional)
<b>Shop Fabricated Tanks</b>		
Quality Management Program <sup>3</sup>	X	
Welding Procedures & Procedure Qualification Records	X	
Welder and Welding Inspector Certifications	X	

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	Verify <sup>1</sup>	Witness <sup>2</sup>
PWHT Records, as applicable	X	
Shop Inspection Check sheets	X	
Shop Test Reports	X	
NDE (RT, UT, MT, PT, Air Pressure, Water Test, Vacuum Box Test) Reports, as applicable	X	
Mill Test Reports (MTR's)	X	
Applicable evidence or confirmation that ASME, API, AWWA or other Code requirements complied with	X	
Cleaning and Coating Procedures	X	
Coating related verification checklists and documentation (i.e. surface preparation, DFT survey, spark test, humidity)	X	
Visual inspection prior to shipment		
Dimensional check verifications	X	X (optional)
Nameplate	X	X (optional)
Configuration and arrangement	X	X (optional)
Random examination of welding	X	X (optional)
Manhole, nozzles, fittings and appurtenances confirmation, if applicable	X	X (optional)
<b>Compressors and Dryers (Oxidation Air Compressors, Instrument / Service Air Compressors and Dryers)</b>		
Factory Test Reports	X	
Pre-shipment Inspection		X (optional)
<b>Receivers (Instrument / Service Air Receivers)</b>		
Quality Management Program <sup>3</sup>	X	
Welding Procedures & Procedure Qualification Records	X	
Welder and Welding Inspector Certifications	X	
Shop Inspection Check sheets	X	
NDE (RT, UT, MT, PT) Reports, as applicable	X	
Mill Test Reports (MTR's)	X	
Leakage Test (as applicable)	X	X (optional)
Pre-shipment Inspection		X (optional)
Notes:		
<ol style="list-style-type: none"> <li>1. Verify – the DISTRICT will verify and review applicable listed items during prefabrication meeting or witness inspection at fabrication location</li> <li>2. Witness – the DISTRICT will have the option to attend the activity indicated.</li> <li>3. Quality Management Program – Quality management documents, such as QA/QC Procedures Manuals, Fabricator's Inspection Point Program, Shop Inspection/Test Procedures, Special Process/Fabrication Procedures, etc.</li> </ol>		

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104.3 QA/QC documentation for Structural, Mechanical, Electrical, HVAC and I&C material and products are further defined in their respective technical sections.

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